

*F. R. White*

IOWA'S HIGHWAYS

By  
F. R. White

HOUSE COMMITTEE ON PUBLIC WORKS

March 13, 1950.

I. General:

Iowa is a rural state. We have no large cities. A very large percentage of our incorporated municipalities are small. We have a total of 931 cities and incorporated towns. The 1940 average population of these cities and incorporated towns was 1672.

The total 1940 population of the State was 2,538,000. Two-fifths of our population, or 982,000, is rural. Three-fifths of our population, or 1,556,000, live in the cities and incorporated towns. The total area of the State of Iowa is 56,147 square miles. We have 213,318 farms. That is an average of four farms per square mile of area. Of the total land area of the State 95.3 percent is farm land. We have no waste spaces. These 213,318 farms are distributed throughout the State with a very considerable degree of uniformity. Largely speaking, there are four farms - four producing units - on each square mile of area. Each one of these producing units is a home. Each one of these farm homes must have access, by public road, to other farms, to the market centers, and to the main traveled highways.

The public highway system of the State of Iowa is laid out, largely speaking, on the checkerboard pattern. There is a road on each of the four sides of each section - each square mile of land. We have a total of 101,372

miles of rural road.

## II. Estimated Highway Needs:

Iowa's efforts to modernize her highway laws and improve her vast mileage of rural road began in 1913, thirty-seven years ago. Since 1913 there have been numerous Acts by the Iowa General Assembly classifying the highways, improving the highway administration machinery, and expanding the highway financial support. Under these several Acts of the State Legislature, and under the stimulus of the several Acts adopted by the Congress, authorizing Federal aid to the states in road building, Iowa highway improvements kept abreast of the times, up until World War II. The destructive effect of the war traffic, the price spiral which followed World War II, and the rapidly increasing volume and weight of the postwar traffic on our highways, made it apparent soon after the war that our highway laws and financial arrangements must be reviewed and overhauled to meet the present and anticipated near future highway needs of our State.

In the spring of 1947, the Iowa General Assembly created a special Highway Study Committee. It was the duty of this committee to make a study of the highway problems - State, county, and municipal - to report in November 1948 as to our highway needs, and to recommend how to meet these needs.

This special committee estimated the cost of needed highway construction and reconstruction in Iowa at \$945,280,000. This total estimate was broken down into

(a) Primary or State Roads outside of cities and towns-----	\$409,560,000
(b) Primary road extensions inside cities and towns-----	72,720,000
(c) Secondary Roads-----	<u>463,000,000</u>
Total -----	\$945,280,000

This estimated \$945,280,000 was for construction and reconstruction work only. This estimate did not include needed maintenance expenditures.

The estimated cost of needed construction and reconstruction on the primary roads and their municipal extensions was broken down into

Right of Way-----	\$ 7,107,000
Excavation-----	60,631,000
New Surfacing -----	118,704,000
Widening and Resurfacing-----	193,824,000
Culverts -----	27,288,000
Bridges-----	74,726,000
Total -----	<u>\$482,280,000</u>

The estimated cost of needed construction and reconstruction in the secondary roads was broken down into

Excavation-----	\$142,154,000
Surfacing (Untreated Gravel or crushed stone)-----	87,546,000
Stabilized base and bituminous surface (7616 miles)-----	86,383,000
Bridges and Culverts-----	<u>147,051,000</u>
Total -----	<u>\$463,134,000</u>

do  
To this construction and reconstruction work in a period of 20 years, would require an annual expenditure of \$47,200,000 for that purpose.

In addition to this needed construction and reconstruction work, the necessary maintenance expenditures were estimated

Primary roads and their municipal extensions-----	\$6,500,000	per year
Secondary roads -----	21,100,000	" "
Total per year -----	\$27,600,000	" "

Engineering and administration of primary and secondary road work was estimated to cost \$4,500,000 per year.

The construction, reconstruction, and maintenance of municipal roads and streets (other than primary road extensions), not financed by special assessments, was estimated to cost \$9,000,000 per year.

Thus a total needed annual highway budget of \$38,300,000 was estimated. This estimated annual highway budget was broken down

Primary Roads -----	\$33,100,000
Secondary Roads -----	46,200,000
Municipal roads and streets	9,000,000
Engineering & Administration	4,500,000
Total -----	\$88,300,000

III. Highway Finances:

To meet these estimated annual highway financial needs of \$88,300,000, the State, the counties, and the cities and towns had in 1948 approximately \$74,100,000 income.

From Property Taxes-----	\$23,700,000
From Federal Aid Allotments	9,800,000
From Road Use Taxes -----	40,600,000
Total 1948 Income -----	\$74,100,000

We needed an additional \$14,200,000 of annual income.

The 53rd Iowa General Assembly which met in January of 1949, applied itself assiduously to the task of providing the \$14,200,000 per year additional highway income, and rewriting and modernizing much of the Iowa highway laws. It did a good job. In fact, it did such

a good job that it now looks as though it provided more annual highway income than the special highway study committee estimated was needed.

The additional funds were provided by increasing the permissible property tax levies, increasing the motor vehicle registration fees, and crediting to the highway funds the income from 2.0% use tax, or sales tax, on new motor vehicles, trailers, tires, parts, and accessories. This portion of the revenues from the sales tax, or use tax, formerly was credited to the State General Fund.

Under these new laws we estimate the income for highway construction, reconstruction, and maintenance in Iowa this year approximately as follows;

(a) For Primary Roads:

Road Use Tax Funds, 42.0% of \$60,000,000-----	\$25,200,000
Federal Aid-----	<u>6,300,000*</u>
Total for Primary Roads-----	\$31,500,000

\*Allotted under 1948 Act.

(b) For Secondary Roads:

1. County Funds,	
Property Taxes-----	\$24,900,000
Road Use Tax Funds (35.0% of \$60,000,000)-----	<u>21,000,000</u>
Total County Funds-----	\$45,900,000
2. Farm to Market Road Funds,	
Road Use Tax Funds (15.0% of \$60,000,000)-----	\$ 9,000,000
Federal Aid-----	<u>3,500,000*</u>
Total Farm to Market Funds-----	\$12,500,000
Total for Secondary Roads-----	\$58,400,000

\*Allotted Under 1948 Act.

(c) For Municipal Roads and Streets:

Property Taxes-----	\$5,500,000
Road Use Tax Funds (8.0% of \$60,000,000)---	4,800,000
Total For Municipal Roads and Streets-----	\$10,300,000

(d) Grand Total All Roads and Streets----- \$100,200,000

This estimated 1950 highway income in Iowa comes from the following sources:

Road Use Taxes, \$60,000,000 =	59.9%
Property Taxes, 30,400,000 =	30.3%
Federal Aid, 9,800,000 =	9.8%
Total \$100,200,000 =	100.0%

We have \$4,500,000 of highway bonds outstanding.

They will be paid off this year. We do not contemplate any more bond issues for highways. We propose to pay for what we build when we build it.

V. Present Condition:

The present condition of the rural roads of Iowa is as follows:

Primary Roads

Paved-----	5715 Miles
Bituminous (Blacktop)---	845 "
Gravel -----	2140 "
Total -----	8700 "

Farm to Market Roads

Paved-----	20 Miles
Bituminous (Blacktop)---	410 "
Gravel or Stone-----	27,450 "
Unsurfaced-----	6,320 "
Total -----	34,200 "

Local Secondary Roads

Paved-----	40 Miles
Bituminous (Blacktop)---	280 "
Gravel or stone-----	26,130 "
Unsurfaced-----	31,950 "
Total -----	58,400 "

Five thousand two hundred miles of this primary road pavement is ten to thirty years old, with an average age of twenty years. Three-fourths of this pavement is only eighteen feet wide. The remainder is twenty feet wide. About two thousand miles of this old pavement on our main truck lines is badly battered by traffic. This pavement needs reconstruction, widening, and resurfacing. Some 1300 primary road bridges need reconstruction and widening. Much of the gravel or stone surfaced road on primary, farm to market, and local secondary roads needs reconstruction, regrading, and resurfacing.

VI. Highway Systems or Classifications:

The 101,300 miles of rural highway in Iowa is classified into two systems - the primary or state road system, and the secondary road system. The secondary road system is subdivided into farm to market roads and local secondary roads as follows;

Primary Roads -----	8,700 Miles
Secondary Roads,	
Farm to Market,     34,200	
Local Secondary,   58,400	
Total Secondary Roads-----	<u>92,600 Miles</u>
Total All Rural Roads-----	101,300 Miles

The primary or state road system is coincident with the Federal Aid primary road system. The farm to market road system is coincident, or practically coincident, with the Federal Aid secondary road system.

VII. Proposed Program:

In the language of the Highway Study Committee,  
"The objectives of the highway program in Iowa can  
be briefly stated. They are:

A. Primary Roads:

(1) Complete initial construction of the primary road system, including its extensions within municipalities. This involves the construction of a dustless surface on all primary roads not now so improved, together with such grading and bridge and culvert work as is incidental thereto.

(2) Widen or construct entirely as conditions may require, all existing pavements, bridges, culverts, and earth shoulders where such facilities do not now serve today's traffic satisfactorily.

(3) Resurface pavements, as the need develops, for protecting original investments and providing satisfactory service to traffic.

B. Secondary Roads:

(1) Extend all-weather road service to every reasonably located rural home.

(2) Surface all roads that are necessarily used as school bus and rural mail routes.

(3) Reconstruct existing surfaced roads where grades or alignments are such that satisfactory service cannot be given at reasonable maintenance costs.

(4) Conserve surfacing materials, reduce traffic hazards, and improve highway service by constructing dust-free surfaces on the most heavily traveled.

sections of the secondary road system."

VIII, Progress in Postwar Contract Lettings;

The postwar letting of highway contracts in Iowa started slowly after the close of hostilities in 1945 and has increased steadily each year since, as follows:

Fiscal Year Ending June 30	Primary Roads	Farm to Market Roads	Total
1946	\$ 8,638,518	\$ 2,327,213	\$ 10,965,731
1947	8,433,920	4,817,434	13,251,354
1948	12,759,517	5,969,005	18,728,523
1949	11,548,334	11,272,021	22,820,356
*1950	7,991,097	8,446,458	16,437,556

Totals to  
March 1, 1950     \$49,371,386     \$32,832,131     \$82,203,520

\*Eight months, July 1, 1949 to February 28, 1950.

In the first three postwar years (1946, 1947 and 1948) the letting of contracts was handicapped badly by the shortages of just about everything required in highway construction. These shortages have now largely disappeared. We now have sufficient contractors, men, equipment, and, with minor exceptions, material. Our engineering staff is not yet sufficient in quantity or quality. That deficiency is being overcome rapidly. Prices for highway construction are now steady, with a tendency downward.

IX. Traffic:

A brief summary of the average daily vehicle-miles of traffic on our rural roads is as follows:

Primary-----	9,290,000	vehicle-Miles =	67.6%
Farm to Market-----	3,196,000	" "	= 23.3%
Local Secondary -----	1,259,000	" "	= 9.1%
Total	13,745,000	" "	= 100.0%

Thus, 90.9% of the average daily vehicle-miles of traffic on all the rural highways of Iowa is carried by

the primary and farm to market road systems (the Federal Aid Primary and Federal Aid Secondary road systems) which have a combined mileage of 42,900 miles or 42.3% of the total rural road mileage. The local secondary road system which includes 58,400 miles or 57.7% of the total rural road mileage, carries only 9.1% of the total rural road traffic.

That the traffic on these local secondary roads is very light, is indicated by the following classification of these local secondary roads into traffic groups or brackets:

Traffic Volume (Vehicles Per Day)	Local Secondary Roads	
	Miles	Percent
Less than 10	16,338	28.0%
10 to 24	28,906	49.5%
25 to 49	11,792	20.2%
50 to 99	1,364	2.3%
Totals	58,400	100.0%

Thus 16,338 miles or 28.0% of these local secondary roads carry nine vehicles or less per day. Another 28,906 miles or 49.5% of these local secondary roads carry 10 to 24 vehicles. Adding these two, we find that 45,244 miles of these local secondary roads carry 24 vehicles or less per day.

The reason for this light traffic on these local secondary roads is illustrated by the attached maps of Butler, Cedar, Linn, Pocahontas and Polk Counties, Iowa, which show in heavy blue lines, the primary roads, and in red lines the farm to market roads. No point on any of these maps is more than two miles from a primary

or a farm to market road;

The local secondary roads are thus shown to be those local stub roads, one-half mile, one mile, or in exceptional cases, two miles long, which lead from a primary road or from a farm to market road to one, or a few farms.

X. Funds for Local Secondary Roads:

In our State, all secondary roads in any county, both farm to market roads and local roads, are under the jurisdiction of the county. The county maintains these secondary roads with funds derived from local tax levies. In all the 99 counties of the State, about \$21,000,000 per year is provided for the maintenance of these secondary roads. If the maintenance funds in any county are not sufficient to pay for the necessary maintenance work on the secondary roads, the county board can transfer sufficient funds from construction to maintenance to make up the deficit.

It is within the discretion of the county board to determine what part of these secondary road maintenance funds shall be spent for maintaining the local secondary roads. Thus, reasonably ample provision has been made for the maintenance of the local secondary roads.

About \$8,000,000 per year from the secondary road construction fund of the counties is available for expenditure for construction work on the local secondary roads. These funds come, about \$3,000,000 from local tax levies, and about \$5,000,000 from road use tax funds. Thus provision has been made for reasonable progress in the improvement of these local secondary roads. This

point is illustrated by the fact that on January 1st. of this year, 26,450 miles or 45.3% of the 58,400 miles of local secondary roads in Iowa were surfaced with gravel or crushed stone.

XI. Type of Farm to Market Road Work and Average Cost Per Mile:

Since the war ended, contracts have been let for \$32,832,000 of farm to market road work in our State. These contracts include

- 4.0 Miles of paving
- 64.0 Miles of stabilized base and blacktop
- 2621.0 Miles of Grading,
- 3544.0 Miles of gravel or stone surfacing,
- 1724.0 bridges and reinforced concrete culverts and miscellaneous items.

The average cost per mile of farm to market road projects (exclusive of bridges and right of way) in our State since the war has been

Grading (including small pipe culverts)	\$5044.00
Concrete Box Culverts-----	1500.00
Surfacing (Untreated Gravel or Stone)-	1911.00
Total -----	<u>\$8455.00</u>

Including the bridges, the average cost per mile is \$11,325.00.

XII. Summary:

Federal Aid Secondary (farm to market) road work in Iowa is proceeding satisfactorily. We're doin' all right! There is full cooperation between the Federal, State, and County road officials. All projects are initiated by the county boards of supervisors. Under our state law, each county is required to employ a county highway engineer. He must be a registered engineer, licensed to practice in Iowa.

The county engineer makes the surveys and prepares the plans for Federal aid secondary road projects. The State Highway Commission approves the plans, advertises for bids, and lets the contracts. The county acquires the necessary right of way. Construction is supervised by the county engineer under the supervision of the State Highway Commission engineers. During the present fiscal year we expect to let contracts for \$15,500,000 of farm to market road work. In the fiscal year which begins July 1, 1950 we expect to let contracts for about \$18,500,000 of farm to market road work.

On January 1, 1950 we had 835 farm to market road projects pending, but not under contract. These pending projects are estimated to cost \$24,361,000. These projects were in all stages, from newly initiated projects up to projects which had been advertised for bids.

The present Federal Aid Secondary road law is working satisfactorily in our State. We have no complaints against the law or its administration.